

### **Abstract**

The present invention provides a protein having a binding capacity to a plasticizer, which has been conferred with useful properties for measuring, quantifying, or concentrating a 5 plasticizer, such as high sensitivity, low cross-reactivity, high tolerance for interferents, and high tolerance for solvents. Specifically, the present invention provides a modified protein having various properties, such as affinity for antigenic plasticizers, antigen binding capacity, cross-reactivity, 10 tolerance for antigen-antibody reaction interferents, tolerance for enzymatic color developing reaction interferents, and tolerance for solvents, improved by gene recombination technology.